

**A COMPARATIVE ANALYSIS OF
TRAINING AND QUALIFICATION PROGRAM
REQUIREMENTS OF
DOE ORDERS 5480.20, 5480.6,
AND
5480.5**

JULY 1994

FOREWORD

This report compares Department of Energy (DOE) selection, qualification, and training requirements specified for reactor and non-reactor facilities in DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, to similar requirements specified in DOE Orders 5480.6, Safety of Department of Energy-Owned Nuclear Reactors, and 5480.5, Safety of Nuclear Facilities. The purpose of this comparison is to identify the similarities and differences between the present training requirements of DOE Order 5480.20 and those previously contained in DOE Orders 5480.6 and 5480.5. The comparison consists of three sections, each with a specific purpose.

Section 1 provides an overview of the content and relationships between the three DOE orders and other guidance documents.

Section 2 summarizes the major differences between the training requirements of DOE Orders 5480.20, 5480.6, and 5480.5.

Section 3 is a requirement-by-requirement comparison of DOE Order 5480.20 selection, qualification, and training requirements and those previously specified in DOE Orders 5480.6 and 5480.5. This section consists of five tables.

Table I is a requirement-by-requirement comparison of the general requirements of section I of DOE Order 5480.20 to similar requirements specified for Category A and B reactors in DOE Order 5480.6.

Table Ia is a requirement-by-requirement comparison of the general requirements of section I of DOE Order 5480.20 to similar requirements specified for Non-reactor nuclear facilities in DOE Order 5480.5.

Table II illustrates the similarities and differences between the specific requirements for Category A reactors in DOE Orders 5480.20 and 5480.6.

Table III illustrates the similarities and differences between the specific requirements for Category B reactors in DOE Orders 5480.20 and 5480.6.

Table IV is a requirement-by-requirement comparison of the specific requirements for Non-reactor nuclear facilities in DOE Orders 5480.20 and 5480.5.

SECTION 1

OVERVIEW OF CONTENTS AND RELATIONSHIP

BETWEEN DOE ORDERS 5480.20, 5480.6, AND

5480.5, AND OTHER

GUIDANCE DOCUMENTS

OVERVIEW OF CONTENTS AND RELATIONSHIP BETWEEN DOE ORDERS 5480.20, 5480.6, AND 5480.5, AND OTHER GUIDANCE DOCUMENTS

PRESENT DOE REQUIREMENTS

DOE Order 5480.20, Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities, incorporates improvements and regulatory requirements into one document. DOE Order 5480.20 was issued to update and consolidate DOE's existing prescriptive-type training requirements and to be complementary and compatible with performance-based training. The approach taken in development of 5480.20 was to consolidate all training requirements that are common to both reactor and non-reactor nuclear facilities and to include requirements that are specific to Category A reactors, Category B reactors, and Non-reactor nuclear facilities. In addition, training related issues (i.e., minimum staffing) identified by internal and external reviews are also addressed.

DOE Order 5480.20 encompasses those requirements (education and experience, examination and certification, program frequency, requalification, etc.) that are contained in accepted industry standards. 5480.20 combines and updates the training requirements previously contained in DOE Orders 5480.5 and 5480.6.

PREVIOUS DOE REQUIREMENTS

DOE Order 5480.6, Safety of Department of Energy-Owned Nuclear Reactors, required the use of guidance documents ANSI/ANS 3.1 (draft of 10/80), American National Standard for Selection, Qualification and Training of Personnel for Nuclear Power Plants, and NRC Regulatory Guide (Reg. Guide) 1.8 (draft of 9-80), as the basis for qualification and training of personnel at DOE Category A reactors. Additional requirements were contained in the Order, which interpreted or modified these requirements. Because a power reactor standard was applied to Category A test and research reactors, selective application of the standard was permitted. DOE Order 5480.6 required DOE approval of Category A reactor training plans, including justification for deviations from the standard. Compliance with these approved training plans became the standard against which the facility was judged. The following comparisons for Category A reactors (Tables 1 and 2) assume compliance with ANS 3.1 (draft of 10/80).

DOE Order 5480.6 also contained requirements for selection, training, examination and certification, retraining, reexamination, recertification, and records for Category B reactor operators, supervisors, and maintenance personnel.

DOE Order 5480.5, Safety of Nuclear Facilities, of 9-23-86, required that a program be established and documented for the selection, training, and retraining of all individuals who operate, maintain, or supervise activities in Non-reactor nuclear facilities. Included were specific requirements for medical examinations, specific on-the-job training topics, examination and verification of training, retraining and reexamination, and records for operating personnel. DOE 5480.5 also specified additional specific requirements for establishment of a program for fissionable material handlers, operators, and supervisors who process, store, transfer, or handle significant quantities of fissionable material.

SECTION 2

SUMMARY OF MAJOR DIFFERENCES

BETWEEN THE TRAINING REQUIREMENTS

OF DOE ORDERS 5480.20, 5480.6, AND 5480.5.

**SUMMARY OF THE MAJOR DIFFERENCES BETWEEN
THE TRAINING REQUIREMENTS OF
DOE ORDERS 5480.20, 5480.6, AND 5480.5.**

GENERAL COMMENTS

The following general items were addressed in DOE Order 5480.20 but were not contained in DOE Orders 5480.6 or 5480.5:

1. The development of governing procedures except as specifically indicated in the tables.
2. Clear endorsement of the systematic approach to training (SAT) methodology for Category B reactors and Non-reactor nuclear facilities. However, DOE Orders 5480.5 and 5480.6 required training to be based on job requirements.
3. Overtime limitations, staffing, and proficiency requirements.
4. Education, experience, and training requirements for operating organization personnel other than maintenance personnel, Fissile Material Handlers (FMHs), operators, and supervisors for Category B reactors and Non-reactor nuclear facilities.
5. General Employee Training (GET) for Category B reactors and Non-reactor nuclear facilities.
6. Training organization requirements.
7. Exclusion of the group or individual who provided training from being the certifying authority.
8. A requirement to identify other certified positions.
9. Requirements for the operational use of trainees.
10. Probabilistic Risk Assessment (PRA) training for those facilities that have conducted a PRA.
11. Training requirements for subcontractors were not specifically addressed in DOE Orders 5480.5 and 5480.6; however, ANS 3.1 (draft of 10/80) implied similar requirements for Category A reactors.

SUMMARY OF THE MAJOR DIFFERENCES BETWEEN THE GENERAL REQUIREMENTS OF 5480.20 AND SIMILAR REQUIREMENTS FOR CATEGORY A AND B REACTORS CONTAINED IN DOE ORDER 5480.6. (Ref. TABLE I)

CATEGORY A REACTORS (5480.6/ANS 3.1)

The following comments compare the requirements specified for Category A reactors in DOE Order 5480.6 and ANS 3.1 to the general requirements contained in DOE 5480.20:

1. Requirements did not specifically exclude maintenance personnel who were not qualified from performing tasks independently.
2. Topics to be included in the technical support personnel training program were not identified.
3. Requirements for training for personnel who are absent for greater than 12 months were not included.
4. Requirements for exceptions to training and extensions of qualification/certification were not as prescriptive.
5. Records requirements were not as prescriptive.

CATEGORY B REACTORS

The following comments compare the requirements specified for Category B reactors in DOE Order 5480.6 to the general requirements contained in DOE 5480.20:

1. Only certified positions (reactor operators and their supervisors) are addressed, except for maintenance personnel therefore; specific qualification requirements are not included for other personnel in the operating organization.
2. On-the-Job Training (OJT) was the only method of training specifically identified.
3. Team training was not addressed.
4. There was not a specific requirement to train maintenance personnel on safety related systems.

5. Requirements for exceptions to training, extensions of qualification/certification, alternatives to education, and alternatives to experience were not included.

SUMMARY OF THE MAJOR DIFFERENCES BETWEEN THE REQUIREMENTS FOR NON-REACTOR NUCLEAR FACILITIES SPECIFIED IN 5480.5 COMPARED TO THE GENERAL REQUIREMENTS CONTAINED IN DOE 5480.20 (Ref. TABLE Ia).

The following comments compare the requirements specified for Non-reactor nuclear facilities in DOE Order 5480.5 to the general requirements contained in DOE Order 5480.20:

1. On-the-Job Training (OJT) was the only method of training specifically identified.
2. Management involvement in, and review of, the training program was not specifically required.
3. Team training was not addressed.
4. Drill performance and training on mitigating accidents were not required for certified operators, FMHs, and their supervisors.
5. There was not a specific requirement to train maintenance personnel on safety related systems.
6. A program for removal and reinstatement of certification was not required.
7. Requirements for exceptions to training and extensions of qualification/certification were not as prescriptive.
8. Requirements for alternatives to education and experience were not included.
9. The records requirements were not as prescriptive.

SUMMARY OF THE MAJOR DIFFERENCES BETWEEN THE SPECIFIC CATEGORY A REACTOR PERSONNEL REQUIREMENTS IN DOE ORDER 5480.20 AND THOSE SPECIFIED IN DOE 5480.6 and ANS 3.1. (Ref. TABLE II)

The following specific items were addressed in DOE Order 5480.20 but were not contained in DOE Orders 5480.6 or ANS 3.1:

1. There are some minor differences in experience requirements.

2. A specific requirement for medically clearing operators and supervisors prior to returning to work after a medical absence of greater than one month.
3. Requirements for medical examinations for positions other than operators and supervisors.
4. Prescriptive simulator requirements for production reactors.
5. A requirement for Control Manipulations to be developed from a job analysis.

**SUMMARY OF THE MAJOR DIFFERENCES BETWEEN SPECIFIC CATEGORY B REACTOR PERSONNEL REQUIREMENTS IN DOE ORDER 5480.20 AND THOSE CONTAINED DOE 5480.6.
(Ref. TABLE III)**

The following specific items were addressed in DOE Order 5480.20 but were not contained in DOE Orders 5480.6:

1. A specific requirement for medically clearing operators and supervisors prior to returning to work after a medical absence of greater than one month.
2. A requirement for training to include a combination of classroom and On-the-Job Training (OJT). OJT was the only method of training specifically identified in 5480.6.
3. Control Manipulations are required to be developed and performed.

SUMMARY OF THE MAJOR DIFFERENCES BETWEEN SPECIFIC NON-REACTOR NUCLEAR FACILITIES REQUIREMENTS IN DOE ORDER 5480.20 AND THOSE CONTAINED IN 5480.5. (Ref. TABLE IV)

The following specific items were addressed in DOE Order 5480.20 but were not contained in DOE Orders 5480.5:

1. Specific entry-level requirements for maintenance personnel, FMHs, operators, and supervisors.
2. A requirement for training to include a combination of classroom and On-the-Job Training (OJT). OJT was the only method of training specifically identified in 5480.6.

3. Medical examination requirements for other than FMHs, operators, and supervisors.

SECTION 3

REQUIREMENT-BY-REQUIREMENT COMPARISON

OF DOE ORDERS 5480.20, 5480.6, AND 5480.5

TRAINING REQUIREMENTS

INTRODUCTION

Table I is different from the remaining tables in that it contains five columns. The left-column contains an identical or paraphrased requirement from DOE 5480.20. To the extent possible, the numbering used to identify these requirements corresponds directly to that used in 5480.20. The next column to the right indicates whether or not an equivalent requirement exists in DOE Order 5480.6 or other Category A reactors guidance documents. The statements which are found in this column are explained below. Directly to the right of this column is the reference column, which indicates where the requirement can be found in the Order or guidance document. The reference supplied is as specific as possible. However, in some cases the requirement is very broad; therefore, the reference is less specific. If the requirement in the Order or guidance document matches the requirement in the left hand column there may not be a comment included. If the requirement in the Order or guidance document deviates from the requirement in DOE 5480.20, or further clarification is needed, a comment is included in the reference column. The next column to the right indicates whether or not an equivalent requirement exists in DOE Order 5480.6 for Category B reactors. Directly to the right of this column is another reference column as described above.

For Table Ia through Table IV the left-hand column of each table contains an identical or paraphrased requirement from DOE 5480.20. The middle column indicates whether or not an equivalent requirement exists in the applicable DOE Order requirements or other guidance document. The statements which are found in the middle column are explained below. The right-hand column is a reference column as explained above.

EXPLANATION OF STATEMENTS FOUND IN MIDDLE COLUMN

Equivalent requirement - The requirement in the applicable DOE Order or guidance document is the same as that specified in DOE 5480.20.

Similar requirement - The requirement in the applicable DOE Order or guidance document is the same as that specified in DOE 5480.20 except for minor differences, which are described in the reference column.

Implied requirement - The requirement specified in DOE 5480.20 is implied in the applicable DOE Order or guidance document although it is not specifically stated.

No equivalent requirement - A specific equivalent requirement to that specified in DOE 5480.20 could not be located in the applicable DOE Order or guidance documents.

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
2. TRAINING ORGANIZATION - NO EQUIVALENT REQUIREMENTS IN 5480.6				
3. SUBCONTRACTOR PERSONNEL QUALIFICATION				
Qualification criteria for subcontractor personnel who replace persons in the operating organization are established.	More liberal requirement.	ANS 3.1 section 3.1 allows replacement temporarily (not to exceed 3 months) of operating organization personnel (except ROs or SROs) but does not include a criteria. Reg. Guide 1.8 states 1 month instead of 3 months.	No equivalent requirement.	
a. Subcontractor personnel shall meet the qualification requirements for the job function to be performed prior to active involvement in facility activities.	More liberal requirement.	ANS 3.1 section 3.1 allows the person filling the position to be qualified at the next lower level in the field.	No equivalent requirement.	
b. Subcontractor personnel who do not meet the requirements for work activities on safety- related structures, systems, and components identified in the facility SAR shall be supervised by a person who meets the qualification criteria established by the operating organization for conduct of such activities.	No equivalent requirement.		No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
<p>c. The operating organization shall ensure that subcontractor and temporary personnel who perform specialized activities such as radiation protection, maintenance, in-service inspection, radiography, and welding are qualified to perform their assigned tasks by properly documenting one of the following:</p> <p>(1) The satisfactory result of an audit of subcontractor records which relate to qualification of the subcontractor personnel being considered for assignment by the operating organization.</p> <p>(2) Previous verification (within 2 years) of the ability of the subcontractor employee to perform assigned tasks safely and efficiently.</p> <p>(3) Successful completion by the subcontractor employee of those segments of the operating organization's qualification program which are considered pertinent to the accomplishment of the task to be performed.</p>	Similar requiremen t.	Reg. Guide 1.8 requires evidence of previous education, experience, and training. Review of this evidence by appropriate professional technical group leaders is required to determine content of training required. As a minimum GET is required.	No equivalent requiremen t.	
4. PERSONNEL SELECTION				
a. A process for selecting and assigning personnel into the operating organization shall be established.	Similar requiremen t	ANS 3.1 establishes the criteria to be used.	Similar requiremen t	5480.6 section (2)(a) establishes the criteria to be used.

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
b. DOE approval is required on a case-by-case basis for individuals who do not meet experience requirements for a position but are assigned to the position based on a determination that the overall operating organization is balanced and strong.	Implied requirement.	5480.6 requires the training plan to be approved by DOE. Therefore deviations from the plan would also require DOE approval.	Implied requirement.	5480.6 specifies the requirements for operators, FMH, and their supervisors; therefore, deviations from the Order would require DOE approval.

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
5. QUALIFICATION PROCESS				
<p>a. Written procedures clearly define qualification requirements for each functional level that are based on criteria in 5480.20</p> <p>The shift in relative importance of managerial and technical competence shall be considered in establishing these requirements.</p>	<p>No equivalent requirement.</p> <p>No equivalent requirement.</p>		<p>No equivalent requirement.</p> <p>No equivalent requirement.</p>	
<p>b. Qualification may be granted only after assuring that all requirements (including training and examinations as required) and other specified requirements (e.g., medical examination) have been satisfactorily completed.</p>	<p>Similar requirement.</p>	<p>5480.6 section 8.e.(1)(d) <u>5</u> requires qualifications to be documented.</p>	<p>Equivalent requirement for maintenance only.</p>	<p>5480.6 section 8.e.(2)(i) <u>3</u> requires qualification to be documented for maintenance personnel, other personnel in the operating organization are not included.</p>
<p>c. Qualification is valid for a maximum of two years.</p>	<p>No equivalent requirement.</p>		<p>Similar requirement for certified positions only.</p>	<p>Addressed in certification.</p>
6. CERTIFICATION PROCESS				
<p>a. Certification is governed by written procedures which include management assessment of a person's qualifications through examinations and operational evaluations.</p>	<p>Equivalent requirement for shift supervisors, ROs, and SROs.</p>	<p>5480.6 section 8.e.(1)(d) <u>5</u>.</p>	<p>Equivalent requirement for supervisors, and ROs.</p>	<p>5480.6 section 8.e.(2)(d).</p>

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
b. Certification may be granted only after assuring that all qualification requirements (including written and oral examinations and operational evaluations) and other specified requirements (e.g., medical examinations) have been satisfactorily completed, and management has assured that the person is capable of safely performing all functions of the position.	Equivalent requiremen t.	5480.6 section 8.e.(1)(d) <u>5</u> .	Equivalent requiremen t.	5480.6 section 8.e.(2)(d).
Certification shall be verified by a person or group other than the person or group that provided the training or the candidate's immediate supervisor.	Similar requiremen t.	5480.6 section 8.e.(1)(d) <u>5</u> . does not address the group that provided the training.	Similar requiremen t.	5480.6 section 8.e.(2)(d) does not address the group that provided the training.
Certification is valid for a maximum of two years.	Equivalent requiremen t.	5480.6 section 8.e.(1)(b) <u>2</u>	Equivalent requiremen t.	5480.6 section 8.e.(2)(g).
c. Certification is required of positions equivalent to positions listed in 5480.20.I.6.c.	Equivalent requiremen t.	5480.6 section 8.e.(1)(b) <u>2</u>	Equivalent requiremen t.	5480.6 section 8.e.(2)(d).
All other positions requiring certification are identified.	No equivalent requiremen t.		No equivalent requiremen t.	
7. TRAINING				
a. GENERAL				

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
Qualification and certification programs consist of a combination of classroom-type and on-the-job training, including simulator and laboratory training as applicable.	Equivalent requirement for ROs and SROs. Similar requirement for other positions	ANS 3.1 section 5.2 ANS 3.1 sections 5.3 and 5.4 do not specifically include all the methods of training.	Similar requirement for supervisors and ROs only.	5480.6 only requires OJT for supervisors and ROs.
(1) Qualification and certification programs are reviewed by training and facility management and kept up to date to reflect changes to the facility, procedures, regulations, and quality assurance requirements as well as applicable industry operating experience.	Equivalent requirement.	ANS 3.1 section 5.1	No equivalent requirement.	
Team training is incorporated into the training program.	Equivalent requirement.	ANS 3.1 section 5.1	No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
c. INITIAL TRAINING				
Initial training programs are established for all operating organization personnel.	Equivalent requirement.	ANS 3.1 section 5.1	Similar requirement.	5480.6 section 8.e.(2) only addresses ROs, supervisors, and maintenance personnel.
Administrative procedures are in place limiting the operational use of trainees in accordance with (IAW) 5480.20.I.7.c.	No equivalent requirement.		No equivalent requirement.	
d. CONTINUING TRAINING				
Continuing training programs are established for operating organization personnel who perform functions on structures, systems, and components identified in the Safety Analysis Report.	Equivalent requirement.	ANS 3.1 section 5.5.	Equivalent requirement for ROs and supervisors only.	5480.6 section 8.e.(2) (e).
(1) Continuing training shall be structured commensurate with specific position needs,	Equivalent requirement.	ANS 3.1 sections 5.1 and 5.5.	Equivalent requirements for ROs and supervisors only.	5480.6 section 8.e.(2)(e) and (f).
And administered on a biennial cycle.	Equivalent requirement.	5480.6 section 8.e.(1)(d) <u>3a</u>	Equivalent requirements for ROs and supervisors only.	5480.6 section 8.e.(2)(e) and (f).

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
(2) Periodic written and oral examinations and/or operational evaluations are administered and documented during the continuing training cycle.	Equivalent requirement for licensed positions only.	5480.6 section 8.e.(1)(d) <u>3a</u> and ANS 3.1 section 5.5.1.	Similar requirement.	5480.6 section 8.e.(2)(f) only requires training on identifiable weak areas.
(3) Abnormal and emergency procedures training and examination is required annually for certified operators and supervisors.	Equivalent requirement.	5480.6 section 8.e.(1)(d) <u>3a</u>	Equivalent requirement.	5480.6 section 8.e.(2)(e).
(4) Continuing training programs for certified operators include preplanned classroom-type training, on-the-job training, and operational evaluations on a regular and continuing basis.	Equivalent requirement.	5480.6 section 8.e.(1)(d) <u>3a</u> and ANS 3.1 section 5.5.1.	Similar requirement.	5480.6 section 8.e.(2)(e) does not specify methods to be used.
Continuing training programs for certified operations personnel include, as a minimum, those training items related to job performance in 5480.20.I.7.d.(4)(a)-(d).	Equivalent requirement.	5480.6 sections 8.e.(1)(d) <u>3a</u> , <u>b</u> , and <u>c</u> and ANS 3.1 section 5.5.1.	Equivalent requirement for ROs and supervisors.	5480.6 sections 8.e.(2)(e) and (f).
e. GENERAL EMPLOYEE TRAINING (GET)				
A GET program is in place IAW 5480.20.I.7.e.(1) and (2).	Equivalent requirement.	ANS 3.1 section 5.4.	No equivalent requirement.	
Examination is required for all personnel except short-term visitors as specified in 5480.20.I.7.e.(3).	Similar requirement.	ANS 3.1 section 5.4 does not specify a "written" examination.	No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
Persons who do not pass this examination are not be permitted access without a continuous escort.	Similar requiremen t.	ANS 3.1 section 5.4 limits access to the protected area not necessarily to the entire facility.	No equivalent requiremen t.	
(4) GET is included in the Continuing Training Program for all facility personnel, and reexaminations are required at least every 2 years.	Similar requiremen t.	ANS 3.1 section 5.4 does not specifically require GET to be included in the licensed operator continuing training program.	No equivalent requiremen t.	
f. PROBABILISTIC RISK ASSESSMENT (PRA) TRAINING				
For those facilities for which a PRA HAS BEEN PERFORMED , PRA results are included in initial and continuing training programs for operations and technical support personnel IAW 5480.20.I.7.f.	No equivalent requiremen t.		No equivalent requiremen t.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
g. TECHNICIAN AND MAINTENANCE PERSONNEL TRAINING				
A training program is established to develop and/or improve knowledge and skills of personnel.	Equivalent requiremen t.	ANS 3.1 section 5.1.	Similar requiremen t for maintenanc e personnel only.	5480.6 section 8.e.(2)(i) requires all maintenance personnel to be trained and a policy written describing the maintenance organization as it relates to reactor safety.
(1) Personnel in this category are qualified to perform tasks associated with their job specialty, or are directly supervised.	No equivalent requiremen t.		Equivalent requiremen t.	5480.6 section 8.e.(2)(i) <u>1</u> .
(2) Training is provided on safety-related systems IAW 5480.20.I.7.g.(2).	Similar requiremen t.	ANS 3.1 section 5.3.4 does not include all elements specified in the Order.	No equivalent requiremen t.	
h. TECHNICAL SUPPORT PERSONNEL TRAINING				
(1) A training program is established for entry-level technical support personnel.	Equivalent requiremen t.	ANS 3.1 section 5.3.2	No equivalent requiremen t.	
(2) A list of specific technical support personnel positions to be included in the training program is developed.	Implied requiremen t.	5480.6 required selective application of ANS 3.1. This would imply a correlation between facility positions and those in ANS 3.1.	No equivalent requiremen t.	
Subject areas provided in 5480.20.I.7.h.(2)(a)-(1) are included in the training program.	Similar requiremen t.	ANS 3.1 section 5.3.2 requires the training to be based on task analysis and did not specify topics.	No equivalent requiremen t.	
i. MANAGEMENT AND SUPERVISORY TRAINING				

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
Training programs for managers and first line supervisors are established IAW 5480.20.I.7.i (1) and (2) as appropriate to their job responsibilities.	Similar requirement.	ANS 3.1 section 5.2.1.8 lists some of the topics listed in 5480.20.I.7.i(1) for licensed supervisors but none of those in section (2). Section 5.3.1 for non-licensed supervisors states training is to be based on task analysis.	No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
8. OPERATOR AND SUPERVISOR EXAMINATIONS				
Written and oral examinations and operational evaluations shall be prepared and administered to demonstrate that certified operators and supervisors possess the required knowledge and skills.	Equivalent requirement.	ANS 3.1 sections 5.1 and 5.2.	Equivalent requirement.	5480.6 section 8.e.(2)(c) specifies examination/evaluations for ROs and supervisors.
Written examinations and operational evaluations shall be prepared and administered for the qualification of other operators and supervisors.	Similar requirement.	ANS 3.1 specifies exams/evaluations for STA, non-licensed operators, and GET. Exams/evaluations requirements for other positions are not specified.	No equivalent requirement.	
Separate oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).	Similar requirement.	ANS 3.1 lists these separately but does not specifically state that they must be separate.	Equivalent requirement.	5480.6 section 8.e.(2)(c).
a. Written procedures which address examination/evaluation development, approval, security, and administration are in place to administer examinations and operational evaluations.	No equivalent requirement.		No equivalent requirement.	
Written procedures are in place to establish and maintain examination question banks.	No equivalent requirement.		No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
b. The oral examination content shall be tailored to evaluate the candidate's operational knowledge (initial/continuing training program subjects) and organizational awareness to determine how the individual will function in an operating environment.	No equivalent requirement.		Similar requirement.	5480.6 section 8.e.(2)(c) states that exams are to contain questions on all categories listed but does not specifically address oral exam content or organizational awareness.
Oral examination questions, the candidate's response, and the evaluation by the examiner(s) of that response shall be documented.	Similar requirement.	ANS 3.1 section 5.2.1 does not require documentation of the students' response.	Similar requirement.	5480.6 section 8.e.(2)(h) <u>4</u> does not require candidates' response and allows a summary instead of individual questions asked.

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
9. OPERATOR AND SUPERVISOR REEXAMINATIONS				
Reexaminations for certified and qualified operators and supervisors include subjects in which the person is expected to be proficient and emphasize those subjects covered by the continuing training program.	Similar requiremen t.	ANS 3.1 section 5.5.1.3 includes exam content requirements for ROs and SROs but does not specifically require exams for non-licensed positions.	Similar requiremen t.	5480.6 section 8.e.(2)(f) includes requirements for ROs and supervisors but not for qualified positions.
Biennial written and oral examinations and operational evaluations, or periodic examinations throughout the cycle that cover all continuing training program subjects/elements are administered.	Similar requiremen t.	ANS 3.1 section 5.5.1.3 includes exam/evaluation requirements for ROs and SROs but not for non-licensed positions.	Similar requiremen t.	5480.6 section 8.e.(2)(f) includes requirements for ROs and supervisors but not for qualified positions.
Separate biennial oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).	Similar requiremen t.	ANS 3.1 lists these separately but does not specifically state they must be separate.	Equivalent requiremen t.	5480.6 section 8.e.(2)(f).
10. REQUALIFICATION (removal and reinstatement of qualification)				
Employees shall not be allowed to function as qualified/certified operators and supervisors if they have not completed all of the requalification program elements within two years.	Equivalent requiremen t for ROs and SROs only.	ANS 3.1 section 5.5.1.3.3.	Equivalent requiremen t for ROs and SROs only.	5480.6 section 8.e.(2)(g) only addresses certified positions.
If an operator or supervisor fails a requalification examination, or shows serious job performance deficiencies which indicate that he or she may perform in an unsafe manner, the person shall be removed from activities requiring qualification.	Equivalent requiremen t for ROs and SROs only.	ANS 3.1 section 5.5.1.3.3.	Equivalent requiremen t for ROs and SROs only.	5480.6 section 8.e.(2)(g) only addresses certified positions.

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
a. Qualification is regained only after completion of remedial training designed to correct the deficiency(s) and a reexamination is administered.	Equivalent requirement for ROs and SROs only.	ANS 3.1 section 5.5.1.3.3	Equivalent requirement for ROs and SROs only.	5480.6 section 8.e.(2)(g) only addresses certified positions.
<u>Recertification</u> of operators and supervisors includes a review of individual operating performance during the past certification period by either line management, by a committee, or by a person designated by management and a current medical examination.	Implied requirement.	5480.6 and ANS 3.1 do not address recertification, however, the specified requirements are the same as for certification.	Equivalent requirement.	5480.6 section 8.e.(2)(g).
b. When a certified operator or supervisor has been absent from certification duties for greater than 3 months, but less than 12 months, selected retraining (including written and oral examinations and operational evaluations) shall be given as deemed necessary prior to reassignment to certification duties. The certification base date remains the same as it was before the absence.	Similar requirement.	ANS 3.1 section 5.5 says greater than six months and requires a special requalification program.	Similar requirement.	5480.6 section 8.e.(2)(g) <u>4</u> just states that less than 12 months requires a special requalification program.
If the absence is greater than 12 months, comprehensive written and oral examinations and operational evaluations (as required of initial candidates) shall be given to determine weak areas. Retraining and reexamination shall be required in areas of weakness, and upon successful completion, a new certification date may be established.	No equivalent requirement.	ANS 3.1 section 5.5 says greater than six months and requires a special requalification program.	Equivalent requirement.	5480.6 section 8.e.(2)(g) <u>4</u> .

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
11. EXCEPTIONS TO TRAINING				
Initial training programs are developed for persons with entry-level knowledge and skills.	Equivalent requirement.	ANS 3.1 section 5.2 states that the training programs outlined are for individuals with no previous training and experience and that actual training programs should be based on the person's experience and prior training as compared to the task analysis. 5480.6 section 8.e.(1)(d) <u>1</u> requires training to be developed in the same manner.	No equivalent requirement.	
In all cases, the requisite examinations to establish qualification are completed.	No equivalent requirement.		No equivalent requirement.	
a. Written procedures are in place for taking exceptions to the entry-level requirements of 5480.20.I.11.	No equivalent requirement.		No equivalent requirement.	
The name of the person and the specific subject for which the exception is requested, along with justification for the exception, shall be included as part of the documentation.	No equivalent requirement.		No equivalent requirement.	
In all cases, the operating organization shall ensure that sufficient facility-specific instruction is provided to enable the candidate to perform job requirements.	Equivalent requirement.	ANS 3.1 section 5.2.1.7 has the same requirement for testing in lieu of training.	No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
Procedures for granting exceptions are approved by DOE.	No equivalent requirement.	5480.6 required a training plan to be submitted to and approved by the head of the field office. Justification had to be provided in the plan for any deviations from ANS 3.1. Therefore any deviations, i.e., exceptions, were approved by DOE but there was not a requirement to have procedures approved by DOE.	No equivalent requirement.	Any deviations from 5480.6 would have to be approved by DOE but there was not a requirement to have procedures approved by DOE.
b. Individual exceptions are approved by contractor management.	No equivalent requirement.		No equivalent requirement.	
12. EXTENSIONS				
a. Written procedures which include the elements contained in 5480.20.I.12.a.(1) through (4) are in place to control extensions of qualification and certification.	No equivalent requirement.		No equivalent requirement.	
b. Extensions of certification are approved by the DOE field office.	Implied requirement.	Because extensions are a deviation from a DOE Order time requirement, DOE approval would be required to deviate from the Order/ANS 3.1/ training plan requirements.	Implied requirement.	Because extensions are a deviation from a DOE Order time requirement, DOE approval would be required to deviate from the Order requirements.
Extension of qualification is approved by contractor management.	Implied requirement.	See b. above. It would be necessary to obtain management approval prior to DOE approval.	Implied requirement.	See b. above. It would be necessary to obtain management approval prior to DOE approval.
13. ALTERNATIVES TO EDUCATION				

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
A system or written procedure is in place for determining alternatives to educational requirements IAW 5480.20.I.13.	No equivalent requirement.		No equivalent requirement.	
Alternatives to the education requirements specified are considered on a case-by-case basis and approved and documented by the operating organization.	Equivalent requirement.	ANS 3.1 section 4.1. Reg guide 1.8 states exceptions for individual qualifications should not exceed 5% of all positions or NRC approval is required. It also states exceptions for plant manager, operations manager, radiation supervisor, or shift supervisor should not be used.	No equivalent requirement.	
d. Related experience may substitute for education at the rate of six semester credit hours for each year of experience up to a maximum of 60 credit hours.	No equivalent requirement.	ANS 3.1 section 4.1 allowed substitution of experience for education, but did not quantify.	No equivalent requirement.	
14. ALTERNATIVES TO EXPERIENCE				
A system or written procedure is in place for determining alternatives to experience requirements IAW 5480.20.I.14.	No equivalent requirement.		No equivalent requirement.	
a. Formal education is not allowed to substitute for more than 50 percent of the experience requirement unless otherwise stated in 5480.20 requirements.	Equivalent requirement.	5480.6 section 8.e.(1)(c).	No equivalent requirement.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
b. Job-related training in the position sought may qualify as equivalent to nuclear experience on a one-for-one basis for up to a maximum of two years.	Similar requiremen t.	ANS 3.1 section 5.2.1 allows this but does not specify a limit.	No equivalent requiremen t.	
15. LIMITATIONS FOR OVERTIME WORKED	No equivalent requiremen t.		No equivalent requiremen t.	

TABLE I - GENERAL REQUIREMENTS

CATEGORY A AND B REACTORS

5480.20 REQUIREMENTS	DOE 5480.6 CATEGORY A REACTORS	DOE 5480.6 CATEGORY A REACTORS COMMENTS/REFERENCES	DOE 5480.6 CATEGORY B REACTORS	DOE 5480.6 CATEGORY B REACTORS COMMENTS/REFERENCES
16. RECORDS				
Written procedures are in place that specify requirements for the maintenance of training, qualification, and certification records for operating organization personnel.	No equivalent requiremen t.		Similar requiremen t.	5480.6 section 8.e.(2)(h) does not require a procedure, however, the Order serves as procedure because it provides very prescriptive requirements for records for ROs and SROs.
a. Qualification and certification of personnel shall be documented in an easily auditable format.	Equivalent requiremen t.	ANS 3.1 section 5.6	Equivalent requiremen t.	5480.6 section 8.e.(2)(h) specifies record requirements for ROs and supervisors only. Records for other positions are not addressed Section 8.m. requires records to be maintained in accordance with DOE 1324.2.
Individual qualification and certification records include all items specified in 5480.20.I.16.a.(1) through (7).	Similar requiremen t.	5480.6 section 8.m. requires records to be maintained in accordance with DOE 1324.2 which is not as prescriptive as these requirements.	Similar requiremen t.	5480.6 section 8.e.(2)(h) does not specify checklists or answer keys but specifies other record requirements for ROs and supervisors only. Records for other positions are not addressed.
b. A historical record that documents initial qualification or certification, and applicable information from the above list that verifies the most recent qualification or certification shall be retained in individual records.	Similar requiremen t.	ANS 3.1 section 5.6 required retention of similar information for up to 5 years.	Equivalent requiremen t.	5480.6 section 8.e.(2)(h).

TABLE Ia - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
2. TRAINING ORGANIZATION	No equivalent requiremen ts.	
3. SUBCONTRACTOR PERSONNEL QUALIFICATION	No equivalent requiremen ts.	
4. PERSONNEL SELECTION		
a. A process for selecting and assigning personnel into the operating organization shall be established.	Equivalent requiremen t.	5480.5 section 10 requires a program for selection of personnel.
b. DOE approval is required on a case-by-case basis for individuals who do not meet experience requirements for a position but are assigned to the position based on a determination that the overall operating organization is balanced and strong.	Implied requiremen t for Fissile Materials Handlers (FMHs), operators, and supervisor s.	5480.5 section 10.a.(10)(g) states that any waiver from the requirements in 10. a. requires head of the field office approval. Selection requirements are in section 10.
5. QUALIFICATION PROCESS		

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
<p>a. Written procedures clearly define qualification requirements for each functional level that are based on criteria in 5480.20</p> <p>The shift in relative importance of managerial and technical competence shall be considered in establishing these requirements.</p>	<p>No equivalent requiremen t.</p> <p>No equivalent requiremen t.</p>	
<p>b. Qualification may be granted only after assuring that all requirements (including training and examinations as required) and other specified requirements (e.g., medical examination) have been satisfactorily completed.</p>	<p>Equivalent requiremen t.</p>	<p>5480.5 section 10.a.(6) requires verification of training by management.</p>
<p>c. Qualification is valid for a maximum of two years.</p>	<p>Similar requiremen t.</p>	<p>5480.5 section 10.a.(8) requires verification of training every two years.</p>

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
6. CERTIFICATION PROCESS		
a. Certification is governed by written procedures which include management assessment of a person's qualifications through examinations and operational evaluations.	No equivalent requiremen t.	
b. Certification may be granted only after assuring that all qualification requirements (including written and oral examinations and operational evaluations) and other specified requirements (e.g., medical examinations) have been satisfactorily completed, and management has assured that the person is capable of safely performing all functions of the position.	Equivalent requiremen t.	5480.5 section 10.a.(6) requires verification of training by management. 5480.5 section 10.a.(2) requires the candidate to be able to perform all tasks safely and proficiently and section 10.a.(6) requires verification of this.
Certification shall be verified by a person or group other than the person or group that provided the training or the candidate's immediate supervisor.	Similar requiremen t for Fissile Material Handlers (FMHs) and their supervisor s.	5480.5 section 10.a.(6) does not address group that provided the training.
Certification is valid for a maximum of two years.	Similar requiremen t.	5480.5 section 10.a.(8) requires verification of training every two years. The verification of training required is equivalent to certification.
c. Certification is required of positions equivalent to positions listed in 5480.20.I.6.c.	Similar requiremen t for FMHs and their supervisor s.	5480.5 section 10.a.(6) requires verification of training for these positions. The verification of training required is equivalent to certification.

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
All other positions requiring certification are identified.	No equivalent requiremen t.	
7. TRAINING		
a. GENERAL		
Qualification and certification programs consist of a combination of classroom-type and on-the-job training, including simulator and laboratory training as applicable.	Similar requiremen t.	5480.5 only specifies one method of training; On-the-Job training (OJT). Training for FMHs, and their supervisors includes other methods.
(1) Qualification and certification programs are reviewed by training and facility management and kept up to date to reflect changes to the facility, procedures, regulations, and quality assurance requirements as well as applicable industry operating experience.	Implied requiremen t.	5480.5, paragraphs 8. and 9. contain review and appraisal requirements for contractor management, one of which is review of nuclear facility training programs.
Team training is incorporated into the training program.	No equivalent requiremen t.	
c. INITIAL TRAINING		
Initial training programs are established for all operating organization personnel.	Equivalent requiremen t.	5480.5 section 10.
Administrative procedures are in place limiting operational use of trainees in accordance with (IAW) 5480.20.I.7.c.	No equivalent requiremen t.	
d. CONTINUING TRAINING		

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
Continuing training programs are established for operating organization personnel who perform functions on structures, systems, and components identified in the Safety Analysis Report.	Similar requirement for FMHs, and their supervisors.	5480.5 section 10.a.(7) requires retraining and reexamination.
(1) Continuing training shall be structured commensurate with specific position needs,	Similar requirement for FMHs, and their supervisors.	5480.5 section 10.a.(7) requires retraining and reexamination every two years on all other subjects required for the position.
And administered on a biennial cycle.	Similar requirement for FMHs, and their supervisors.	5480.5 section 10.a.(7) requires retraining and reexamination every two years on all other subjects required for the position.
(2) Periodic written and oral examinations and/or operational evaluations are administered and documented during the continuing training cycle.	Similar requirement.	5480.5 sections 10.a.(7) and (10)(d) require retraining and reexaminations but do not require exams/evaluations to be performed during the retraining cycle.
(3) Abnormal and emergency procedures training and examination is required annually for certified operators and supervisors.	Equivalent requirement.	5480.5 section 10.a.(7).
(4) Continuing training programs for certified operators include preplanned classroom-type training, on-the-job training, and operational evaluations on a regular and continuing basis.	Similar requirement.	5480.5 sections 10.a.(7) and (10)(d) require retraining but do not specify methods to be used or require exams/evaluations during retraining.

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
Continuing training programs for certified operations personnel include, as a minimum, those training items related to job performance in 5480.20.I.7.d.(4)(a)-(d).	Similar requiremen t.	5480.5 sections 10.a.(7) and (10)(d) includes most items for FMHs, and their supervisors. The following are not included: Drills and classroom or OJT on mitigating accidents.
e. GENERAL EMPLOYEE TRAINING (GET)	No equivalent requiremen ts.	
f. PROBABILISTIC RISK ASSESSMENT (PRA) TRAINING	No equivalent requiremen ts.	
g. TECHNICIAN AND MAINTENANCE PERSONNEL TRAINING		
A training program is established to develop and/or improve knowledge and skills of personnel.	Equivalent requiremen t.	5480.5 section 10.b.
(1) Personnel in this category are qualified to perform tasks associated with their job specialty, or are directly supervised.	Equivalent requiremen t.	5480.5 section 10.b.(1).
(2) Training is provided on safety-related systems IAW 5480.20.I.7.g.(2).	No equivalent requiremen t.	
h. TECHNICAL SUPPORT PERSONNEL TRAINING	No equivalent requiremen t.	
i. MANAGEMENT AND SUPERVISORY TRAINING	No equivalent requiremen t.	

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
8. OPERATOR AND SUPERVISOR EXAMINATIONS		
Written and oral examinations and operational evaluations shall be prepared and administered to demonstrate that certified operators and supervisors possess the required knowledge and skills.	Equivalent requirement.	5480.5 section 10.a.(10).
Written examinations and operational evaluations shall be prepared and administered for the qualification of other operators and supervisors.	No equivalent requirement.	5480.5 Does not specify any operational evaluation requirements for other than operators, FMHs, and their supervisors.
Separate oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).	Similar requirement for FMHs, operators and their supervisors.	5480.5 section 10.a.(10)(b) states that examinations may include oral and operating tests. A record of these is required.
a. Written procedures which address examination/evaluation development, approval, security, and administration are in place to administer examinations and operational evaluations.	No equivalent requirement.	
Written procedures are in place to establish and maintain examination question banks.	No equivalent requirement.	
b. The oral examination content shall be tailored to evaluate the candidate's operational knowledge (initial/continuing training program subjects) and organizational awareness to determine how the individual will function in an operating environment.	No equivalent requirement.	

TABLE Ia - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
Oral examination questions, the candidate's response, and the evaluation by the examiner(s) of that response shall be documented.	Similar requiremen t for FMHs, operators and their supervisor s only.	5480.5 section 10.a.(10) (b) only requires documentation of the subjects covered in the oral examination.

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
9. OPERATOR AND SUPERVISOR REEXAMINATIONS		
Reexaminations for certified and qualified operators and supervisors include subjects in which the person is expected to be proficient and emphasize those subjects covered by the continuing training program.	Equivalent requirement for FMHs, operators and their supervisors only.	5480.5 sections 10.a.(7) and (10)(d) require retraining and reexamination on specific topics and on all other subjects which these individuals are expected to be proficient.
Biennial written and oral examinations and operational evaluations, or periodic examinations throughout the cycle that cover all continuing training program subjects/elements are administered.	Similar requirement for FMHs, operators and their supervisors.	5480.5 sections 10.a.(7) and (10)(d) require reexaminations but do not specify what methods shall be used.
Separate biennial oral examinations and operational evaluations are administered to Category A personnel (they may be combined for Category B and non-reactor nuclear facilities).	Similar requirement for FMHs, operators and their supervisors.	5480.5 sections 10.a.(7) and (10)(d) require reexaminations but do not specify what methods shall be used.
10. REQUALIFICATION (removal and reinstatement of qualification)		
Employees shall not be allowed to function as qualified/certified operators and supervisors if they have not completed all of the requalification program elements within two years.	Implied requirement.	5480.5 section 10.a.(8) states verification of training will be completed every two years but does not specifically state the consequences of failure to complete or deficient performance.

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
If an operator or supervisor fails a requalification examination, or shows serious job performance deficiencies which indicate that he or she may perform in an unsafe manner, the person shall be removed from activities requiring qualification.	No equivalent requiremen t.	

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
a. Regualification is regained only after completion of remedial training designed to correct the deficiency(s) and a reexamination is administered.	No equivalent requiremen t.	
<u>Recertification</u> of operators and supervisors includes a review of individual operating performance during the past certification period by either line management, by a committee, or by a person designated by management and a current medical examination.	Similar requiremen t.	5480.5 section 10.a.(8) requires verification of training every two years. This verification of training includes a statement of medical condition and "other pertinent information." Past operating performance is considered pertinent information.
b. When a certified operator or supervisor has been absent from certification duties for greater than 3 months, but less than 12 months, selected retraining (including written and oral examinations and operational evaluations) shall be given as deemed necessary prior to reassignment to certification duties. The certification base date remains the same as it was before the absence.	Equivalent requiremen t.	5480.5 section 10.a.(10)(c). This section also lists specific areas/topics to be considered.
If the absence is greater than 12 months, comprehensive written and oral examinations and operational evaluations (as required of initial candidates) shall be given to determine weak areas. Retraining and reexamination shall be required in areas of weakness, and upon successful completion, a new certification date may be established.	Similar requiremen t.	5480.5 section 10.a.(10)(c) only requires a written examination with mandatory retraining on weak areas from this examination.
11. EXCEPTIONS TO TRAINING		
Initial training programs are developed for persons with entry-level knowledge and skills.	No equivalent requiremen t.	
In all cases, the requisite examinations to establish qualification are completed.	No equivalent requiremen t.	

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
a. Written procedures are in place for taking exceptions to the entry-level requirements of 5480.20.I.11.	No equivalent requirements.	
The name of the person and the specific subject for which the exception is requested, along with justification for the exception, shall be included as part of the documentation.	Equivalent requirements for FMHs, operators and their supervisors.	5480.5 section 10.a.(10)(g) allows waivers and requires this information.
In all cases, the operating organization shall ensure that sufficient facility-specific instruction is provided to enable the candidate to perform job requirements.	No equivalent requirements.	
Procedures for granting exceptions are approved by DOE.	Similar requirements.	5480.5 section 10.a.(10)(g) allows waivers which must be approved by the Head of the DOE Field Organization.
b. Individual exceptions are approved by contractor management.	Similar requirements.	5480.5 section 10.a.(10)(g) allows waivers which must be approved by the Head of the DOE Field Organization.
12. EXTENSIONS		
a. Written procedures which include the elements contained in 5480.20.I.12.a.(1) through (4) are in place to control extensions of qualification and certification.	No equivalent requirements.	
b. Extensions of certification are approved by the DOE field office.	Implied requirements.	5480.5 section 10.a.(10)(g) requires Head of the DOE Field Organization approval for all waivers.

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
Extension of qualification is approved by contractor management.	Equivalent requirement.	5480.5 section 10.a.(10)(g) requires Head of the DOE Field Organization approval for all waivers.
13. ALTERNATIVES TO EDUCATION	No equivalent requirements.	
14. ALTERNATIVES TO EXPERIENCE	No equivalent requirements.	
15. LIMITATIONS FOR OVERTIME WORKED	No equivalent requirements.	

TABLE 1a - GENERAL REQUIREMENTS

NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	DOE 5480.5 NON- REACTOR NUCLEAR FACILITIES	DOE 5480.5 NON-REACTOR NUCLEAR FACILITIES COMMENTS/REFERENCES
16. RECORDS		
Written procedures are in place that specify requirements for the maintenance of training, qualification, and certification records for operating organization personnel.	No equivalent requiremen t.	
a. Qualification and certification of personnel shall be documented in an easily auditable format.	Equivalent requiremen t.	5480.5 section 10.a.(9).
Individual qualification and certification records include all items specified in 5480.20.I.16.a.(1) through (7).	Similar requiremen t.	5480.5 sections 10.a.(9) and (10)(b) require auditable records to be maintained but are not as prescriptive as these requirements.
b. A historical record that documents initial qualification or certification, and applicable information from the above list that verifies the most recent qualification or certification shall be retained in individual records	No equivalent requiremen t.	

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
2. ENTRY-LEVEL REQUIREMENTS		
a. MANAGERS		
<u>(1) PLANT MANAGER</u>		
(a) Has a BS in engineering or related science.	Equivalent requirement.	ANS 3.1 section 4.2.1.
(b) Experience; 6 years nuclear (3 years may be power plant experience), 4 years supervisory or management, and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.2.1.
(c) Holds or has held a Senior Reactor Operator (SRO) certification at similar Category A reactor (or equivalent) or has been certified at an appropriate simulator. If an assistant holds a SRO license the Plant Manager need not meet this requirement.	Similar requirement.	ANS 3.1 section 4.2.1 does not allow requirement to be met by assistant holding license. (Reg. Guide 1.8 requires plant or simulator certification to be conducted or approved by NRC)
<u>(2) OPERATIONS MANAGER</u>		
(a) Has a BS in engineering or related science.	Equivalent requirement.	ANS 3.1 section 4.2.2.
(b) Experience; 4 years nuclear (1 year may be power plant experience) and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.2.2.
(c) Holds an SRO certification at the time of appointment.	Similar requirement.	ANS 3.1 section 4.2.2 requires holding (i.e., maintaining) the SRO license.
<u>(3) MAINTENANCE MANAGER</u>		
(a) Has a BS in engineering or related science.	Equivalent requirement.	ANS 3.1 section 4.2.3.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
(b) Experience; 4 years nuclear (2 years may be power plant experience) and 6 months on site.	Equivalent requiremen t.	ANS 3.1 section 4.2.3.
(c) Is familiar with nondestructive testing and understands electrical, pressure vessel, and piping codes and standards.	Equivalent requiremen t.	ANS 3.1 section 4.2.3.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<u>(4) TECHNICAL MANAGERS</u>		
(a) Has a BS in engineering or related science.	Equivalent requiremen t.	ANS 3.1 section 4.2.4.
(b) Experience; 4 years nuclear (1 year may be power plant experience) and 6 months on site.	Equivalent requiremen t.	ANS 3.1 section 4.2.4.
(c) Holds or has held an SRO certification at a similar Category A reactor or has been certified at an appropriate simulator.	Equivalent requiremen t.	ANS 3.1 section 4.2.4. Reg. Guide 1.8 requires plant or simulator certification to be conducted or approved by the NRC.
<u>(5) TRAINING MANAGER</u>		
(a) Has a Baccalaureate including courses in education, and technical subjects.	Equivalent requiremen t.	ANS 3.1 section 4.2.5.
(b) Experience; 4 years job related which includes 2 years nuclear.	Equivalent requiremen t.	ANS 3.1 section 4.2.5.
(c) If not SRO certified, another person that is SRO certified is responsible to the Training Manager for content and conduct of the certified operator training program.	Equivalent requiremen t.	ANS 3.1 section 4.2.5.
b. SUPERVISORS		
<u>(1) SHIFT SUPERVISOR</u>		
(a) Has a High School Diploma.	Similar requiremen t.	ANS 3.1 section 4.3.1.1 also requires 60 semester hours of college education.
(b) Experience; 4 years nuclear (2 years may be power plant experience).	Equivalent requiremen t.	ANS 3.1 section 4.3.1.1.
(c) Holds and maintains SRO certification.	Equivalent requiremen t.	ANS 3.1 section 4.3.1.1.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<u>(2) SENIOR REACTOR OPERATOR</u>		
(a) Has a High School Diploma.	Similar requirement.	ANS 3.1 section 4.3.1.2 also requires 30 semester hours of college education.
(b) Experience; 4 years power plant (2 years may be academic or related technical training), 2 years nuclear (1 year as Reactor Operator (RO) at the facility), and 6 months on site. The 1 year of RO experience is not needed if the candidate has a BS in engineering or equivalent.	Similar requirement.	ANS 3.1 section 4.3.1.2 only required 3 years experience and does not include the allowance of a degree to change the SRO experience requirement. (Reg. Guide 1.8 section 1.4)
(c) If candidate for SRO has a BS or equivalent: participates as a regular RO candidate in reactor plant operations at power levels of at least 20% power for at least six weeks. performs all control manipulations an RO candidate would perform.	Similar requirement. No equivalent requirement.	ANS 3.1 section 4.3.1.2 contains similar requirements but not used for this purpose.
<u>(3) QUALIFIED SUPERVISOR</u>		
(a) Has a High School Diploma.	Equivalent requirement.	ANS 3.1 section 4.3.2.
(b) Experience; 4 years job related, 1 year nuclear, and 3 months on site.	Equivalent requirement.	ANS 3.1 section 4.3.2.
c. TECHNICAL SUPPORT PERSONNEL		
<u>(1) REACTOR ENGINEERING</u>		
(a) Has a BS in engineering or related science.	Equivalent requirement.	ANS 3.1 section 4.4.1.
(b) Experience; 4 years job related which includes 2 years nuclear and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.4.1.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
(c) Nuclear experience includes such areas as those in 5480.20.II.2.c.(1).	Equivalent requiremen t.	ANS 3.1 section 4.4.1.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<u>(2) INSTRUMENTATION AND CONTROL (I&C)</u>		
(a) Has an Associates Degree in engineering or related science.	Equivalent requirement.	ANS 3.1 section 4.4.2.
(b) Experience; 2 years job related, which includes 1 year nuclear and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.4.2 allows Bachelor's Degree to fulfill 1.5 years of the experience requirement. Reg. Guide 1.8 section 2.4.1 says "should" be 4 years professional, 2 years of which should be in I&C, and 1 year nuclear.
<u>(3) CHEMISTRY AND RADIOCHEMISTRY</u>		
(a) Has a BS in chemistry or related science.	Equivalent requirement.	ANS 3.1 section 4.4.3.
(b) Experience; 2 years job related, which includes 1 year nuclear and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.4.3. Reg. Guide 1.8 section 2.4.1 says "should" be 4 years professional, 2 years of which should be in chemistry or radiochemistry, and 1 year nuclear.
(c) Has 1 year nuclear experience in radiochemistry.	Equivalent requirement.	ANS 3.1 section 4.4.3. Reg. Guide 1.8 section 2.4.1 says "should" be 4 years professional, 2 years of which should be in chemistry or radiochemistry, and 1 year nuclear.
<u>(4) RADIATION PROTECTION</u>		
(a) Has a BS in science or engineering, which includes formal training in radiation protection.	Equivalent requirement.	ANS 3.1 section 4.4.4. Reg. Guide 1.8 section 2.2.3 specifies the content of the radiation protection training.
(b) Experience; 4 years job related, which includes 3 years nuclear on a professional-level, and 6 months on site.	Equivalent requirement.	ANS 3.1 section 4.4.4. Reg. Guide 1.8 section 2.2.3.
<u>(5) Preoperational Testing Engineer</u>		
(a) Baccalaureate in engineering or related science	Equivalent requirement.	ANS 3.1 section 4.4.6.1.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
(b) Experience; 1 year Nuclear (The required nuclear experience may be power plant experience)	Equivalent requiremen t.	ANS 3.1 section 4.4.6.1.
(c) Is knowledgeable of test program administration and/or design and/or operational performance testing (as applicable to job).	Equivalent requiremen t.	ANS 3.1 section 4.4.6.1.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<u>(6) STARTUP TEST ENGINEER</u>		
(a) Has a BS in engineering or related science.	Equivalent requiremen t.	ANS 3.1 section 4.4.6.2.
(b) Experience; 2 years nuclear of which 1 may be power plant.	Equivalent requiremen t.	ANS 3.1 section 4.4.6.2.
(c) Is knowledgeable of experiment program administration, experiment system design, and expected plant operational characteristics during an experiment(s).	Equivalent requiremen t.	ANS 3.1 section 4.4.6.2.
<u>(7) TRAINING COORDINATOR</u>		
(a) Has a High School Diploma	Equivalent requiremen t.	ANS 3.1 section 4.4.7.1
(b) Experience; 2 years nuclear or power plant and 6 months on site.	Equivalent requiremen t.	ANS 3.1 section 4.4.7.1
<u>(8) TRAINING INSTRUCTOR</u>		
(a) Has a High School Diploma.	Equivalent requiremen t.	ANS 3.1 section 4.4.7.2.
(b) Experience; consistent with the material being presented.	Equivalent requiremen t.	ANS 3.1 section 4.4.7.2.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<p>(c) Special requirements:</p> <p>Simulator instructors hold SRO certification on this plant, or have held SRO certification on similar Category A reactor or the plant simulator.</p> <p>Instructors responsible for training on technical specifications, operating practices, and control manipulations have received SRO or equivalent training.</p> <p>Qualified by the Training Manager for the material being presented.</p>	<p>Equivalent requirement.</p> <p>Equivalent requirement.</p> <p>Equivalent requirement.</p>	<p>ANS 3.1 section 4.4.7.2.</p> <p>ANS 3.1 section 4.4.7.2.</p> <p>ANS 3.1 section 4.4.7.2.</p>

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
<u>(9) SHIFT TECHNICAL ADVISOR</u>		
(a) Has a BS in engineering or related science.	Similar requiremen t.	ANS 3.1 section 4.4.8 requires a High school diploma and 60 semester hours of college level education in specific fields.
(b) Experience; 1 year nuclear and 6 months on site.	Equivalent requiremen t.	ANS 3.1 section 4.4.8.
(c) Is knowledgeable of control room instrumentation and controls and is assigned to advise the responsible shift supervisor.	Equivalent requiremen t.	ANS 3.1 section 4.4.8.
d. OPERATORS, TECHNICIANS, AND MAINTENANCE PERSONNEL		
<u>(1) QUALIFIED AUXILIARY OPERATORS</u>		
(a) Has a High School Diploma.	Equivalent requiremen t.	ANS 3.1 section 4.5.1.1.
(b) Experience; 1 year nuclear or power plant if the qualified process operator's actions could affect the quality of structures, systems, and components important to safety.	Equivalent requiremen t.	ANS 3.1 section 4.5.1.1.
<u>(2) REACTOR OPERATOR</u>		
(a) Has a High School Diploma.	Equivalent requiremen t.	ANS 3.1 section 4.5.1.2.
(b) Experience; 3 years nuclear, of which 2 years may be power plant experience and 6 months as a qualified auxiliary operator at the reactor for which certification is sought.	Similar requiremen t.	ANS 3.1 section 4.5.1.2 only requires 1 year of nuclear experience.
<u>(3) TECHNICIANS</u>		
(a) Has a High School Diploma.	Equivalent requiremen t.	ANS 3.1 section 4.5.2.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
(b) Experience; 3 years job related.	Equivalent requiremen t.	ANS 3.1 section 4.5.2.
<u>(4) MAINTENANCE PERSONNEL</u>		
(a) Has journeyman level education.	Equivalent requiremen t.	ANS 3.1 section 4.5.3.
(b) Experience; 3 years related maintenance.	Equivalent requiremen t.	ANS 3.1 section 4.5.3.
3. MEDICAL EXAMINATIONS		
Administered to prospective employees.	Equivalent requiremen t for ROs and SROs only.	5480.6 section 8.e.(1)(c) <u>5</u> states that medical requirements will be in accordance with ANSI N546 and Reg. Guide 1.134. Both of these documents provide medical requirements for licensed ROs and SROs. Requirements for other personnel are not addressed.
Certified operators and supervisors are reexamined at least every two years.	Equivalent requiremen t.	5480.6 section 8.e.(1)(c) <u>5</u> .
Certified operators and supervisors are medically cleared prior to returning to work following any sickness or injury which keeps the person from performing duties for a period exceeding one month.	No equivalent requiremen t.	
Examinations are conducted per ANSI/ANS 3.4-1983 and NRC Regulatory Guide 1.134, Rev 2, 4-87.	Equivalent requiremen t.	Earlier revisions of the same documents are referenced.
Medical examination policies are established for other Operating Organization personnel.	No equivalent requiremen t.	

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
4. ENGINEERING EXPERTISE ON SHIFT		
The Operating Organization ensures each operating shift has adequate engineering and accident assessment expertise.	Equivalent requirement.	ANS 3.1 requires the STA position to fulfill this requirement.
<p>If the STA is combined with the SRO position, the applicant must meet the following requirements:</p> <ul style="list-style-type: none"> a. Currently certified as a senior reactor operator; and b. Successful completion of the STA training requirements in subparagraph 7a, and one of the following educational requirements: <ul style="list-style-type: none"> (1) Baccalaureate in engineering; (2) Professional engineer's license; (3) Baccalaureate in engineering technology including course work in the physical, mathematical, or engineering sciences; or (4) Baccalaureate in a physical science including course work in the physical, mathematical, or engineering sciences. 	<p>Equivalent requirement.</p> <p>Equivalent requirement.</p> <p>Similar requirements</p>	<p>Reg. Guide 1.8 section 2.7 and appendix B.</p> <p>Reg. Guide 1.8 section 2.7 and appendix B.</p> <p>ANS 3.1 section 4.4.8 allows high school diploma and 60 semester hours of college in specified subject areas.</p>
5. STAFFING	No equivalent requirements	
6. SIMULATORS		
Each DOE production reactor has a full scope simulator IAW 5480.20 II.6.	No equivalent requirement.	Although not specifically directed at production reactors 5480.6 section 8.e.(1)(d) <u>2</u> requires an evaluation of need. Based on this evaluation a simulator may or may not be required.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
a. If simulator is for more than one reactor the differences between the simulator and reactor are identified by the operating organization.	No equivalent requiremen t.	
b. The need for a full scope or partial-task simulator (test/research reactors) is based on evaluations by the Operating Organization and approved by the Head of field office and the cognizant Program Senior Official (PSO).	Equivalent requiremen t.	5480.6 section 8.e.(1)(d) <u>2</u> .
7. SPECIFIC TRAINING		
a. SHIFT TECHNICAL ADVISOR		
STA training shall include:		
(1) Accidents analyzed in the facility Safety Analysis Report (SAR) and the consequences of these accidents;	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
(2) Thermodynamics/fluid flow, reactor physics, system engineering, nuclear instrumentation, process computer, and facility response;	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
(3) The duties, responsibilities, and authorities of the STA;	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
(4) Performance of control manipulations on the simulator (for those facilities having simulators), by actual facility maneuvers or drills, or combinations of these;	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
(5) Response to and analysis of facility transients and accidents; and	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
(6) The relationship of accident conditions to offsite consequences and protective action strategies.	Equivalent requiremen t.	ANS 3.1 section 5.3.3. Reg. Guide 1.8 section 2.7 and appendix B.
b. FUEL HANDLING OPERATIONS		

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
Fuel handling operations are performed by or under direct supervision of a certified person.	Equivalent requirement.	5480.6 section 8.e.(3).
If fuel handling is performed by persons not qualified for fuel handling under regular certifications additional requirements must be met IAW 5480.20 II.7.b.	Equivalent requirement.	5480.6 section 8.e.(3).
c. CONTROL MANIPULATIONS		
RO and SRO candidates shall perform a minimum of five significant reactivity additions.	Similar requirement.	5480.6 section 8.e.(1)(d) <u>4</u> states each contractor will develop a list of control manipulations which will be approved by the field office. It does not specify an exact number of manipulations to be performed; however, the list referenced (ANS 3.1 section 5.5.1.2.1) contains many more than five and the NRC requires at least five.
Manipulations are determined by job analysis.	Implied requirement.	5480.6 section 8.e.(1)(d) <u>4</u> requires control manipulations and section 8.e.(1)(d) <u>1</u> requires position task analysis.
A list specifies annual and biennial manipulations.	Implied requirement.	5480.6 section 8.e.(1)(d) <u>4</u> states each contractor will develop a list of control manipulations which will be approved by the field office. It does not specify annual or biennial performance; however, ANS 3.1 section 5.5.1.2.1 is referenced and it specifies annual and biennial performance requirements.
d. REACTOR OPERATOR WRITTEN EXAMINATIONS		
Examinations contain representative knowledge, skills, and abilities from learning objectives developed from the job analysis and facility documents listed in 5480.20.II.7.d.	Equivalent requirement.	ANS 3.1 section 5.0 and 5480.6 section 8.e.(1)(d) <u>1</u> both require the use of a position/task analysis in developing the training programs for operations personnel, which implies the analysis will be used in examination development. ANS 3.1 section 5.0 lists or references documents equivalent to those in 5480.20.
Examinations are consistent with the job analysis and include a representative sampling of the items listed in 5480.20.II.7.d.	Equivalent requirement.	ANS 3.1 section 5.2.1 requires examinations covering material presented in each segment. The segments contain equivalent topics to those listed in 5480.20.
e. SENIOR REACTOR OPERATOR WRITTEN EXAMINATIONS		

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
SRO examinations contain all the information in certified operator examinations, additional information consistent with the job analysis, and cover the topics listed in 5480.20 II.7.e.	Equivalent requirement.	See d. above. ANS 3.1 requires similar topics to be covered.
f. OPERATIONAL EVALUATIONS		
Consist of facility walk-through, or a combination of walk-through and simulator examinations (if facility has a simulator), and may include system and/or component operation.	Similar requirement.	ANS 3.1 section 5.2.1.3.2 prescribes a simulator examination. A plant walkthrough is not required. 5480.6 section 8.e.(1)(d) <u>5</u> mentions an operating exam but does not specify content.
Are consistent with the job analysis.	Similar requirement.	ANS 3.1 section 5.0 and 5480.6 section 8.e.(1)(d) <u>1</u> both require the use of a position/task analysis in developing the training programs for operations personnel, which implies it will be used in operational evaluation development.
Require the candidate to demonstrate an understanding of and the ability to perform the actions necessary to accomplish the items listed in 5480.20 II.7.f.	Similar requirement.	ANS 3.1 section 5.2.1.3.2 contains a less detailed list. The items listed are in broader terms.

TABLE II - CATEGORY A REACTOR SPECIFIC REQUIREMENTS

5480.20 REQUIREMENTS	5480.6/ANS 3.1	COMMENTS/REFERENCES
g. OPERATING CREW/SHIFT TRAINING		
<p>(1) RO trainees are assigned to an operating shift crew under the control of a certified RO for a minimum of 3 months with no concurrent duties that are not related to operation of the facility.</p> <p>Trainee shall manipulate the facility controls and perform the same duties as a certified reactor operator.</p>	Equivalent requiremen t.	5480.6 section 8.e.(1)(d) <u>6 a.</u>
<p>(2) SRO trainees are assigned to an operating shift crew under the control of a certified SRO for a minimum of 3 months with no concurrent duties that are not related to operation of the facility.</p> <p>Trainee shall supervise the manipulation of the facility controls and perform the same duties as a certified senior reactor operator.</p>	Equivalent requiremen t.	5480.6 section 8.e.(1)(d) <u>6 b.</u>
8. OPERATOR PROFICIENCY	No equivalent requiremen ts	

TABLE III - CATEGORY B REACTOR PERSONNEL

5480.20 REQUIREMENTS	5480.6/CATEGORY B REACTORS	COMMENTS/REFERENCES
2. ENTRY - LEVEL REQUIREMENTS		
a. MANAGERS	No equivalent requirements.	
b. SUPERVISORS		
Meets the following prior to assuming the position.		
(1) Has a High School Diploma.	Similar requirement.	5480.6 section 8.e.(2)(a) 1 states "candidates for reactor supervisor should possess that combination of education, experience, and training which provides the equivalent of at least a college education in engineering or science."
(2) Experience; 3 years nuclear of which full-time academic training may fulfill 2 years.	Similar requirement.	5480.6 section 8.e.(2)(a) 1 states "candidates for reactor supervisor should possess that combination of education, experience, and training which provides the equivalent of at least a college education in engineering or science."
(3) The reactor supervisor or shift supervisor is a certified SRO.	Equivalent requirement.	5480.6 section 8.e.(2) states that maintenance of certification is required to act in that capacity.
c. OPERATORS		
(1) Has a High School Diploma.	Similar requirement.	5480.6 section 8.e.(2)(a) 1 states "candidates for reactor operator should possess that combination of education, experience, and training which provides the equivalent of at least a high school education."
d. TECHNICIANS	No equivalent requirements.	
e. MAINTENANCE PERSONNEL		
(1) Experience; 1 year maintenance related.	Implied requirement.	5480.6 section 8.e.(2)(i) states maintenance will be performed by personnel trained based on the class of maintenance to be performed. All maintenance personnel will be trained in their respective discipline.

TABLE III - CATEGORY B REACTOR PERSONNEL

5480.20 REQUIREMENTS	5480.6/CATEGORY B REACTORS	COMMENTS/REFERENCES
f. TECHNICAL SUPPORT PERSONNEL	No equivalent requirements.	

TABLE III - CATEGORY B REACTOR PERSONNEL

5480.20 REQUIREMENTS	5480.6/CATEGORY B REACTORS	COMMENTS/REFERENCES
3. MEDICAL EXAMINATIONS		
Administered to prospective employees.	Equivalent requirement.	5480.6 section 8.e.(2)(a) <u>2</u> requires medical examinations for operating organization personnel.
Certified operators are reexamined at least every two years.	Equivalent requirement.	5480.6 section 8.e.(2)(g) <u>5</u> .
Certified operators and supervisors are medically cleared prior to returning to work following any illness or injury which keeps the person from performing duties for a period exceeding one month.	No equivalent requirement.	
Examinations are conducted per ANSI/ANS 15.4-1988.	Similar requirement.	5480.6 section 8.e.(2)(a) <u>2</u> states that management will identify the demands on health for the job and the medical exam will be based on these demands. ANS 15.4 specifies the content of the exam.
Medical examination requirements for other operating organization personnel are in accordance with contractor policies.	Implied requirement.	5480.6 section 8.e.(2)(a) <u>2</u> states that management will identify the demands on health for the job and the medical exam will be based on these demands. This implies an evaluation is required for all positions.
4. STAFFING	No equivalent requirements.	
5. SPECIFIC TRAINING		
Qualification training programs include classroom-type training and on-the-job training.	Similar requirement.	5480.6 section 8.e.(2)(b).
a. SENIOR REACTOR OPERATOR TRAINING		
(1) Is sufficiently comprehensive to develop the knowledge and skills commensurate with the position and cover areas which are fundamental to job duties.	Equivalent requirement.	5480.6 sections 8.e.(2)(b) <u>2</u> .
(2) Initial and continuing training programs include topic areas from 5480.20 section III.5.a.(2) as applicable to the facility and the job.	Equivalent requirement.	5480.6 sections 8.e.(2)(b) <u>2</u> .
b. REACTOR OPERATOR TRAINING		

TABLE III - CATEGORY B REACTOR PERSONNEL

5480.20 REQUIREMENTS	5480.6/CATEGORY B REACTORS	COMMENTS/REFERENCES
Establish training programs containing topics from the items listed in 5480.20 section III.5.b. and other categories and topics applicable to the facility and job.	Equivalent requirement.	5480.6 sections 8.e.(2)(b) <u>1</u> .

TABLE III - CATEGORY B REACTOR PERSONNEL

5480.20 REQUIREMENTS	5480.6/CATEGORY B REACTORS	COMMENTS/REFERENCES
c. FUEL HANDLING OPERATIONS		
Fuel handling operations are performed by or under direct supervision of a person certified for that task.	Equivalent requirement.	5480.6 section 8.e.(3).
Additional requirements are met IAW 5480.20 section III.5.c if fuel handling is not performed by persons qualified for fuel handling under regular RO or SRO certifications.	Equivalent requirement.	5480.6 section 8.e.(3).
d. CONTROL MANIPULATIONS	No equivalent requirements.	
6. OPERATOR PROFICIENCY	No equivalent requirements.	

TABLE IV - NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	5480.5/NON - REACTOR NUCLEAR FACILITIES	COMMENTS/REFERENCES
2. ENTRY - LEVEL REQUIREMENTS		
a. MANAGERS	No equivalent requirements.	
b. SUPERVISORS	No equivalent requirements.	
c. OPERATORS	No equivalent requirements.	
d. TECHNICIANS	No equivalent requirements.	
e. MAINTENANCE PERSONNEL		
(1) Experience; 1 year maintenance related.	Implied requirement.	5480.5 section 10.b. says maintenance will be performed by personnel trained based on the class of maintenance to be performed. All maintenance personnel will be trained in their respective discipline.
f. TECHNICAL SUPPORT PERSONNEL	No equivalent requirements.	
3. MEDICAL EXAMINATIONS		
Operating contractor determines the physical demands imposed upon certified personnel for both routine and emergency functions.	Equivalent requirement.	5480.5 section 10.a.(4).
Are administered to prospective employees.	Equivalent requirement.	5480.5 section 10.a.(4).
Certified operators, fissionable material handlers, and supervisors are reexamined at least every two years.	Equivalent requirement.	5480.5 section 10.a.(4) states that a reexamination shall be given to requalifying operators and supervisors. 5480.5 section 10.a.(6) requires a verification of training which includes the medical condition of the candidate and section 10.a.(8) specifies that the verification of training be completed at least every two years.

TABLE IV - NON-REACTOR NUCLEAR FACILITIES

5480.20 REQUIREMENTS	5480.5/NON - REACTOR NUCLEAR FACILITIES	COMMENTS/REFERENCES
Certified operators, fissionable material handlers, and supervisors are medically cleared prior to returning to work following any illness or injury which keeps the person from performing duties for a period exceeding one month.	Similar requirement	5480.5 section 10.a.(4) states that operators and supervisors will be medically cleared following serious injury or illness. It does not specifically say one month.
Medical examination requirements for other operating organization personnel are established by contractor procedures.	No equivalent requirement.	
4. STAFFING REQUIREMENTS	No equivalent requirements.	
5. SPECIFIC TRAINING		
a. OPERATORS		
(1) Training is sufficiently comprehensive to cover areas which are fundamental to the job duties.	Equivalent requirement.	5480.5 sections 10.a.(2) and (10)(a).
(2) Training programs include classroom-type training and on-the-job training.	Similar requirement.	5480.5 only specifically addresses OJT.
Training programs include topics IAW 5480.20 section IV.5.a.	Equivalent requirement.	5480.5 sections 10.a.(5) and (10)(d).
b. FISSIONABLE MATERIAL HANDLERS		
Training includes the same categories specified for Operators, and additional categories listed in 5480.20 section IV.5.b.	Equivalent requirement.	5480.5 sections 10.a.(5) and (10)(d).
c. SUPERVISORS		
1. Training includes the categories and on-the-job training specified for Operators and Fissionable Material Handlers, (this training shall be of increased depth) and additional categories listed in 5480.20 section IV.5.c.	Similar requirement.	5480.5 section 10.a.(10)(f) does not include functions, assignments, and responsibilities of the maintenance organization or Applicable portions of the FSAR.
OPERATOR, FISSIONABLE MATERIAL HANDLER, AND SUPERVISOR PROFICIENCY	No equivalent requirements.	